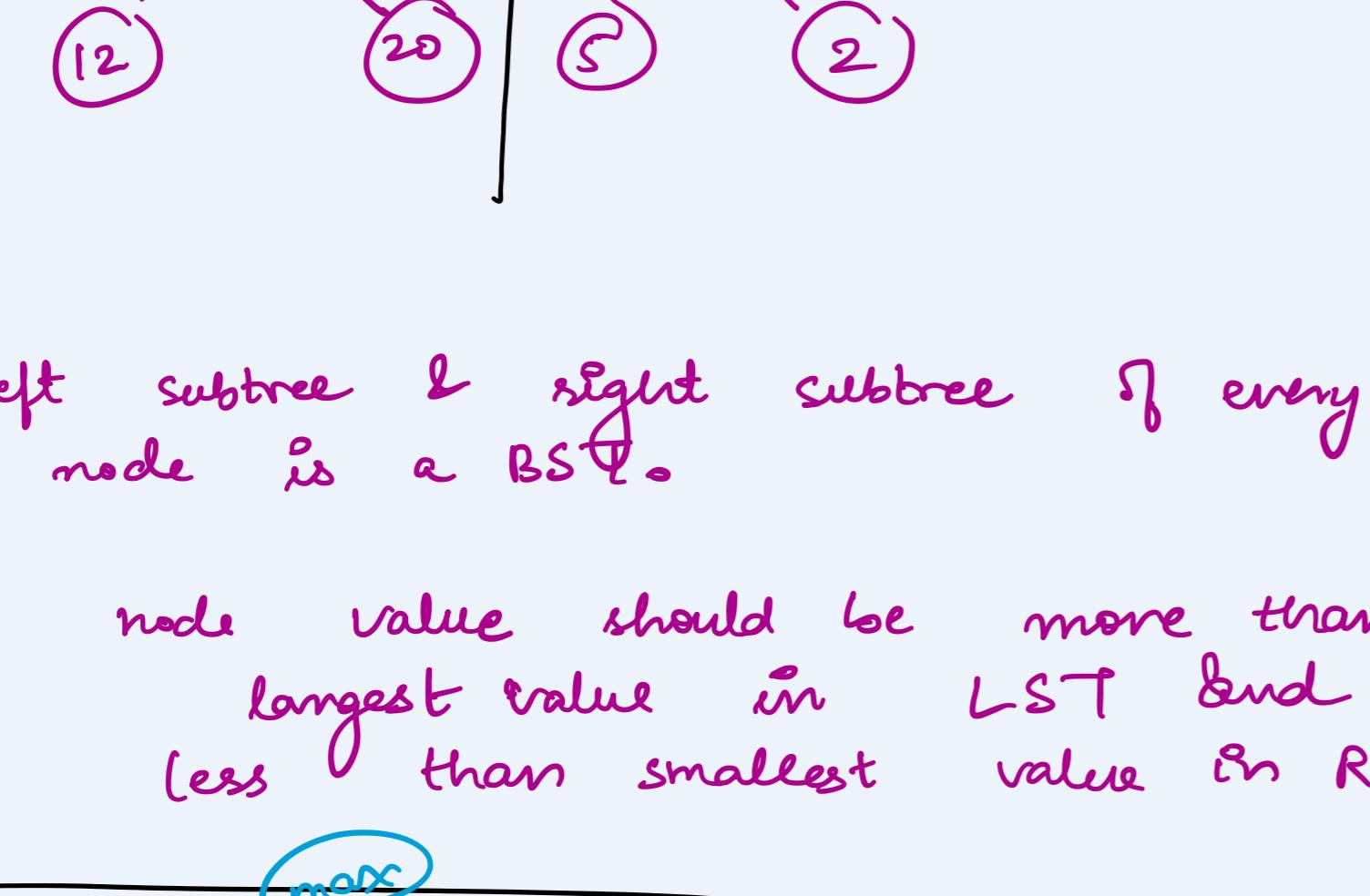
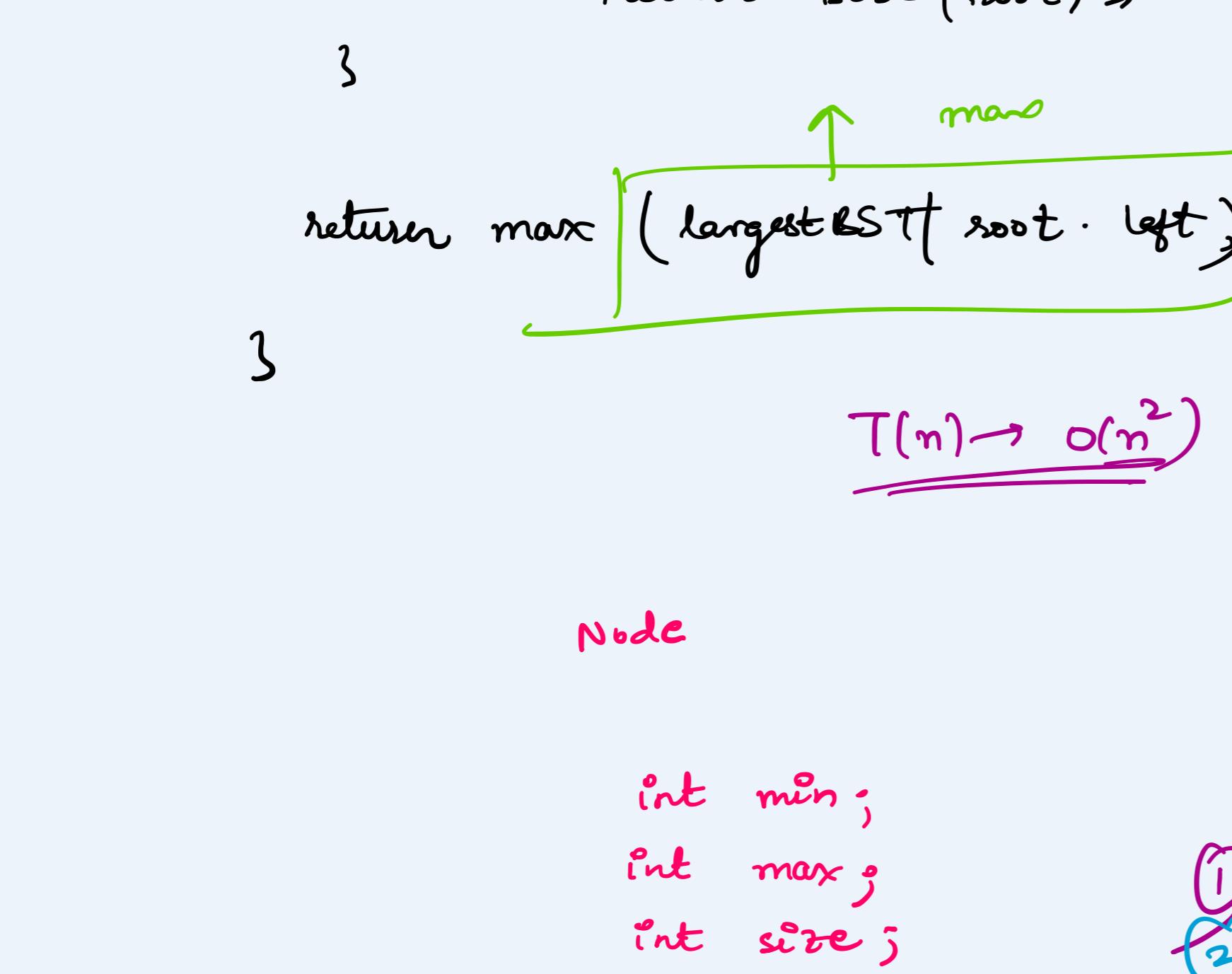


Given a binary tree, find the size of largest BST in it.



1. left subtree & right subtree of every node is a BST.
2. A node value should be more than largest value in LST and less than smallest value in RST.



largest BST (root) {

```
if (isBST (root)) {
    return size (root);
}
```

3

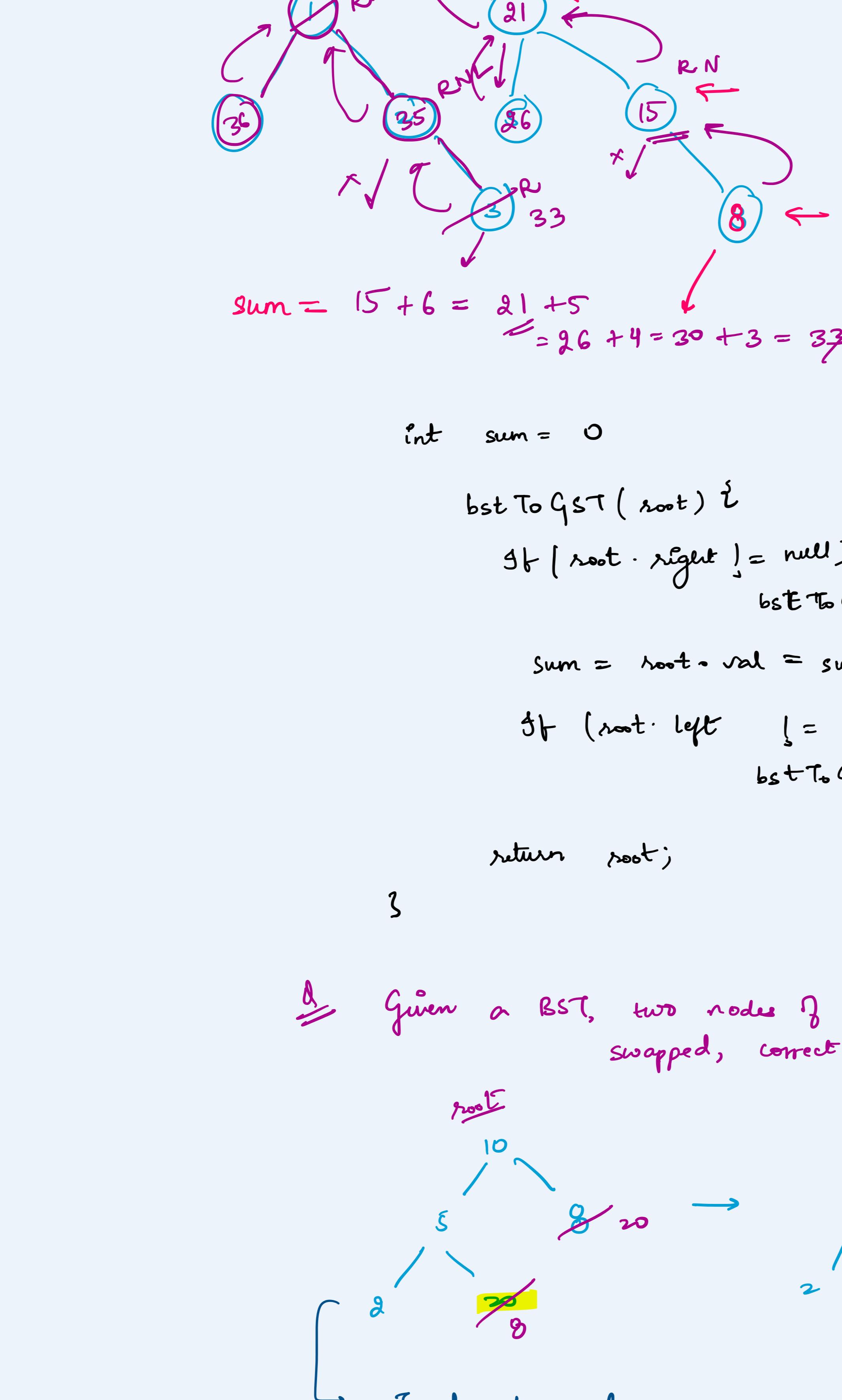
```
return max (largestBST (root.left), largestBST (root.right));
```

3

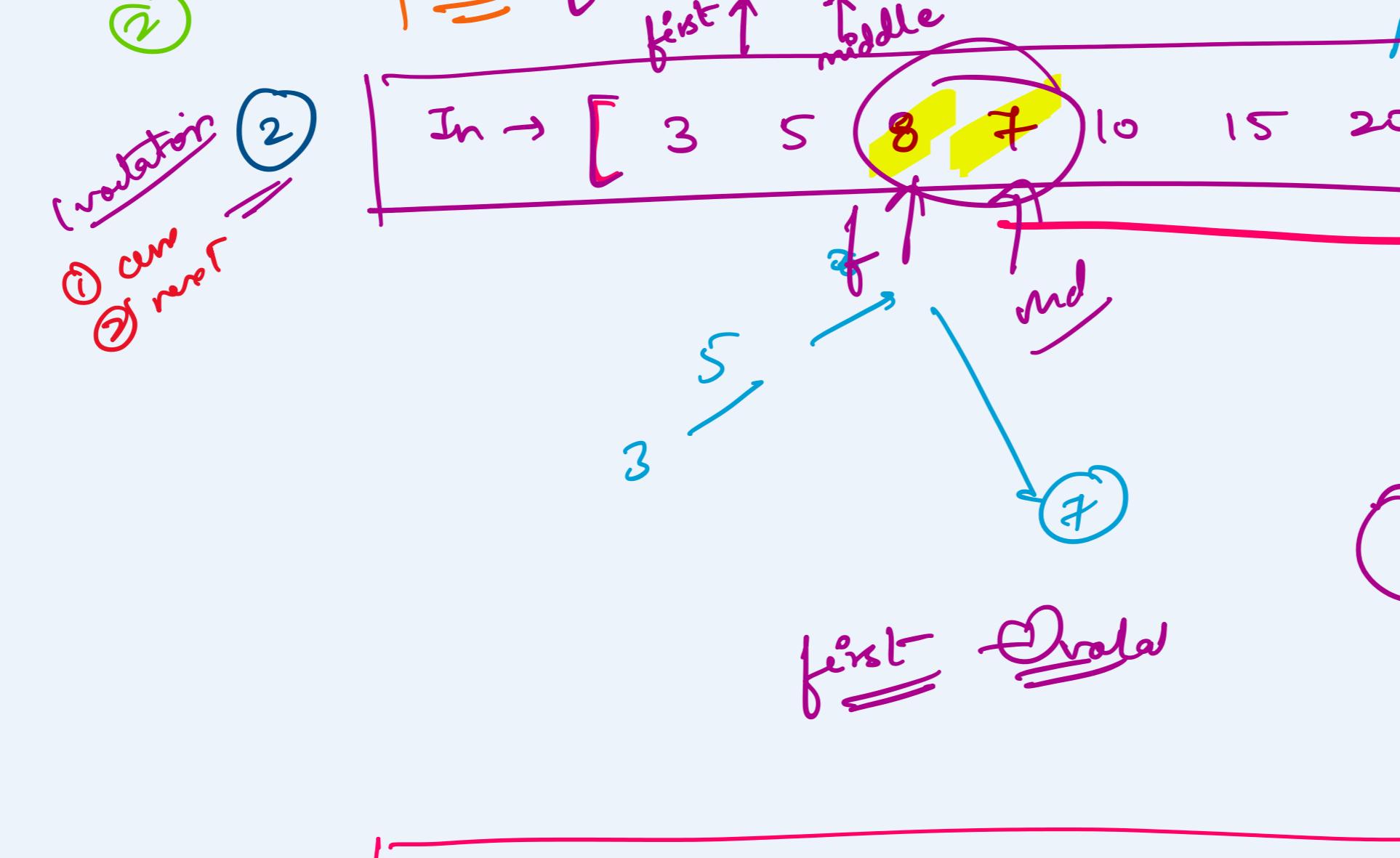
$T(n) \rightarrow O(n^2)$

Node

```
int min;
int max;
int size;
boolean isBST;
```



- Given the root of a BST, convert it to greater tree such that every key of the original BST is changed to the original key plus sum of all keys greater than the original key.



int sum = 0

```
bstToGST (root) {
```

```
if (root.right == null)
    bstToGST (root.right);
```

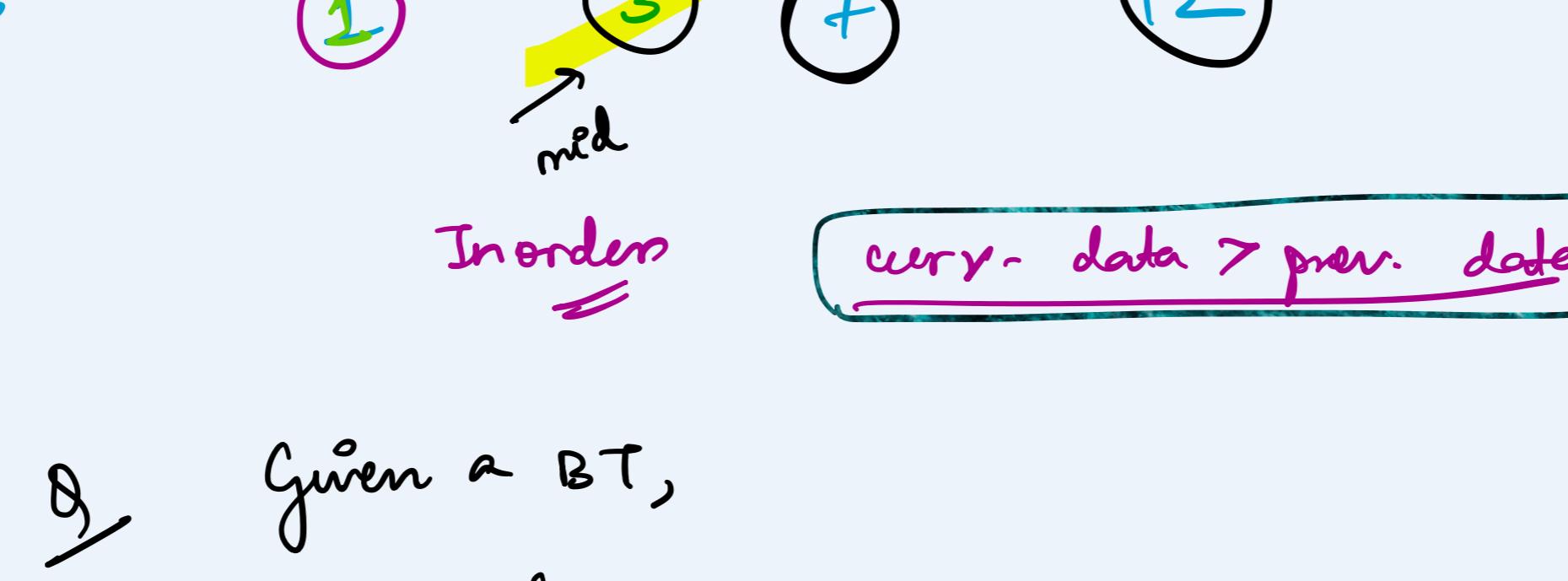
```
sum = root.val + sum + root.val;
```

```
if (root.left != null)
    bstToGST (root.left);
```

return root;

3

Given a BST, two nodes of a BST are swapped, correct the BST.



$O(n \log n)$

$O(n)$

Inorder \rightarrow sorted

① validation

② rotation

first next

middle next

last next

first prev

middle prev

last prev

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